Remarks

This Amendment is respectfully submitted in reply to the Examiner's Official Action dated December 21, 2006. A new Power of Attorney document revoking the previous powers and authorizing the present attorneys to represent Applicant and to file this Amendment on Applicant's behalf was submitted on February 6, 2007, and a Notice of Acceptance of Power of Attorney was mailed on February 13, 2007.

In the present Action, the Examiner indicates that claims 1-39 and 41-82 are currently pending in the application. Of these claims, claims 22, 26-39, 41-52, 64-67, and 82 have been allowed, while claims 1, 2, 23-25, 53-63, 68-73, and 75-80 currently stand rejected, and claims 3-21, 74, and 81 are objected to as being dependent upon a rejected base claim, but the Examiner indicates such claims would be allowable if rewritten in independent for including all of the limitations of the base and any intervening claims. In addition, Applicant has added new claims 82-128. A complete listing of all of the claims is included in the present Amendment, including, it is believed, the proper status identifiers.

Applicant is herein submitting a revised paragraph 32. No new matter has been added, as the added material is disclosed elsewhere in the application, including in the language of the original claims.

Claims 1, 2, 23-25, 53-56, 58, 60-63, 68-73, and 75-80 currently stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,634,447 issued to Rowells. Regarding claim 1, the Examiner directs the Applicant to FIG. 2, Col. 3, lines 25-28 of Rowells. This sentence reads as follows: *"At or about the point when the piston 28 reaches its top dead center position, the exhaust valve 30 is opened by the conventional compression relief device 32 and the energy of the compressed air plus the additional energy created by the pre-top dead center combustion is routed to the turbocharger 34 which in turn further compresses the intake air".* Applicant respectfully asserts that claim 1 is not anticipated by and is patentably distinguishable from Rowells, for the reasons explained below.

Applicant assumes the Examiner is pointing to the compressor end of turbocharger 34 in Rowells, which is indicated as being a conventional turbocharger, and is connected to intake manifold 19, while the turbine end of turbocharger 34 is connected to combustion chamber 24 through exhaust valve 30. Thus, in Rowells, air compressed by turbocharger 34 is directed to the intake manifold, which compressed air is eventually directed into the combustion chamber. However, the turbocharger compressor in Rowells cannot force additional compressed air into the combustion chamber during the same engine cycle. As is clearly shown in FIGS. 1 and 2 of Rowells, an intake valve (not labeled) is positioned between the intake manifold and combustion chamber to block continued air intake during the combustion process. Thus, while the turbocharger compressor in Rowells directs a supply of compressed air

back to the pistons and combustion chamber, this supply of compressed air is prevented from continually flowing into the cylinder and to the combustion process by such intake valve.

Therefore, diesel ignition in the Rowells design is achieved with the intake valve closed, as is clearly depicted in FIGS. 1 and 2 of Rowells, preventing the Rowells design from compressing the said combustible material between the reciprocating means and the compressor means to cause combustion of the combustible material, whereas such a design is claimed by Applicant in claim 1. Applicant's invention compresses and burns all of the combustible material compressed between the compressor means and the reciprocating means during the combustion cycle of the engine. Rowells only burns that combustible material compressed within the combustion chamber, which is only part of the combustible material compressed by the compressor.

In contrast, in Applicant's arrangement, as shown in FIG. 1, the compressor means is a positive displacement gear type air compressor comprised of a pair of meshed hollow gear shafts (66 and 67) mounted in partial cylinders (53 and 54) in the engine housing assembly. As described in Paragraph 30 of Applicant's specification, "*gear shafts 66 and 67 are crankshaft driven, counter rotating in opposite directions drawing intake air through intake port 40 and force the intake air into passage 50 from which it passes into cylinder 60.*" "*Passage 50 extends through internal housing wall 35*

to cylinder 60 that contains piston 76." In the embodiment of the present application shown in FIG. 1, there is no intake valve positioned between the gear shafts and passage 50, so the flow of intake air from intake port 40 across gear shafts 66 and 67 is uninterrupted and continuous. As described in Paragraph 32, as gear shafts 66 and 67 rotate in partial cylinders 53 and 54, air from the intake port 40 is forced along the circumference of such cylinders into passage 50 and then directed into cylinder 60. Fuel is injected into passage 50 when piston 76 reaches approximately top dead center, which fuel is ignited by the high temperature of the compressed air in passage 50 so that combustion commences. Thus, combustion is initiated in passage 50, not in cylinder 60 as in Rowells.

As indicated in Paragraph 33 of the present application, some of the energy due to combustion is directed upwardly to gear shafts 66 and 67 of the positive displacement gear type air compressor. As the gear shafts accelerate, more air is continually pumped into cylinder 60 during each individual combustion process, as well as between combustion processes. In contrast, Rowells, cannot direct combustion pressure to the compressor section of the turbocharger because the intake valve blocks any pressure directed into the intake manifold from the combustion chamber.

While it is true that the intake valve in Rowells may be opened at any time and allow compressed air access to the cylinder during combustion, to do so would direct combustion pressure in the opposite direction against the compressed air from the

compressor. Diesel detonation occurs at about 20 atmospheres of cylinder pressure. Diesel combustion produces far higher cylinder pressure. The cylinder pressure created by combustion would be directed against the compressed air flow from the turbocharger compressor if the intake valve were opened during combustion. Pressure directed at the compressor vanes from their downstream side pushes them in the opposite direction required to compress air towards the intake manifold.

In Applicant's invention, the force of combustion is directed in the same direction the meshing gear teeth rotate because passage 50, as can clearly be seen in FIG. 1, is directed at the center meshing gear teeth and therefore combustion pressure pushes them in the same direction they travel, which is up and counter rotating away from the combustion pressure. Therefore, combustion pressure forces the compressor gears to accelerate, increasing the compressor power.

In Rowells, the compressor is vane type with vanes having angled sides that act as air impellers when they are rotated. The slanting sides of the vanes push the air towards the intake manifold when rotated in one direction and away from the intake manifold when rotated in the opposite direction. For every action, there is an equal and opposite reaction. The air pushes back against the sides of the rotating vanes. If the manifold pressure applied against the vanes from the downstream side is increased by the pressure created by combustion, such pressure forces the compressor vanes to decelerate, decreasing the compressor power.

In addition, the turbocharger compressor in Rowells does not, "compress combustible material held within the housing means between the compressor means and the reciprocating means to cause detonation of said combustible material" as is so stated in claim 1 by Applicant. Even if such arrangement were possible, the effect on the compressor would be the opposite, as stated above.

For the above reasons, Applicant respectfully asserts that claim 1 is not anticipated by and is patentably distinguishable from Rowells, as the turbocharger compressor in Rowells does not continually force compressed air into the combustion chamber during the combustion process, as such air flow is blocked by the intake valve positioned between the intake manifold and combustion chamber or cylinder in Rowells. The use of an intake valve located between the compressor and the combustion chamber to seal the combustion chamber from the intake manifold in supercharged and turbocharged internal combustion engines is ubiquitous throughout the internal combustion engine industry. Nevertheless, Applicant has now amended claim 1 to make it clear that the compressor means can compress more combustible material into the combustion process after detonation commences, rather than simply to the combustion process. Applicant previously used the word "to" in claim 1 to mean "into", rather than to mean toward or in the direction of, both of which according to any dictionary are accepted definitions of "to". However, by amending "to" to "into" it is believed that any doubt that Rowells does not include each and every element of

Applicant's claim 1 as amended, and therefore does not anticipate and is patentably distinguishable from the arrangement shown in Rowells, has been removed.

It is also believed that claims 2-21 depending from claim 1 are also allowable. Claim 20 has been amended slightly to replace the word "gas" with the word "oxygen", as the throttle means disclosed in claim 20 should refer to oxygen entering the intake passage means.

Applicant respectfully asserts that essentially the same arguments provided above with respect to claim 1 also apply to rejected claims 23, 24, and 25. In Rowells, combustible material in the combustion chamber is not compressed between the piston and the compressor means during the compression stroke. While the turbocharger compressor in Rowells directs a flow of compressed air towards the cylinder, such air that is further compressed by the reciprocating means or piston is compressed between such reciprocating means and the closed intake valve, not between the reciprocating means and the turbocharger compressor. Further, the intake valve of Rowells prevents additional combustible material from continually being added to the combustion process after combustion, as the intake valve remains closed until the exhaust material is directed out of the combustion chamber through exhaust valve 30. Applicant has amended claims 23, 24, and 25 to further clarify that the combustible material that is compressed for combustion is held *in the passage between* the compressor means and piston or reciprocating means. According to Applicant's understanding of the language

of the outstanding Office Action, the Examiner considers Rowells to disclose the compression of combustible material between a reciprocating means 28 and compressor means 34. However, combustion does not take place in this space in either the Rowells engine or the present Applicant's engine. After clarifying claims 23, 24, and 25 to better define the passage or space in which the combustible material in Applicant's engine is compressed, it is respectfully submitted that such claims are now clearly patentably distinguishable from Rowells.

Applicant has also amended independent claims 53-54 to better define that the fuel for combustion is compressed in a passage extending between the compressor means, which is a positive displacement gear type compressor, and a reciprocating means. Such passage 50 is clearly defined and discussed in the specification (see, for example, Paragraph 30), and such arrangement it is believed is clearly different from Rowells, where fuel is injected directly into the top of the cylinder where combustion occurs, with a closed intake valve situated between the turbocharger and cylinder, so that air directed from the turbocharger compressor is not subjected to combustion until it has passed into the cylinder on the other side of the intake valve. A similar amendment has also been made to claims 56 and 58. It is believed that in view of such clarification these claims, as well as dependent claims 60-63, are also patentably distinguishable from Rowells. Claim 68 has also been amended to indicate that additional combustible material is compressed using a positive displacement gear type compressor into the combustion process after detonation commences, which Applicant asserts clearly is not

the case in Rowells, as the closed intake valve prevents the addition of further combustible material. In addition, it is respectfully asserted that claims 69-74 depending from independent claim 68 should also now be allowable. Independent claim 75 has been amended to include a positive displacement gear type compressor and continuing to compress combustible material into the combustion process after combustion commences, and it is believed that claims 76-81 depending from claim 75 are also in condition for allowance.

Claims 57 and 59 currently stand rejected under 25 U.S.C. 102(b) as being anticipated by U.S. Patent 4,318,273 issued to H. Nohira et al. entitled "Internal Combustion Engine Equipped with a Turbocharger". The Examiner indicates that Nohira discloses a method for an internal combustion engine comprising the step of compressing a fuel within a housing means between a compressor means 17 and a reciprocating means 3. Compressor means 12 is a turbocharger which forces air back to the engine.

Applicant has amended the language of claim 57 to include a positive displacement gear type compressor where the fuel is compressed in a passage as defined in the specification between said compressor and a reciprocating means. Claim 59 has also been amended to include said passage. Since combustion does not take place in duct 24 in Nohira, it cannot be said that combustion takes place in a passage or

space between by compressor 17 and reciprocating means 3. Thus, Applicant respectfully asserts that claims 57 and 59 are patentably distinguishable from Nohiria.

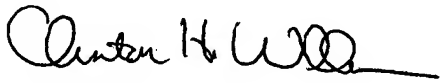
In view of the above, Applicant respectfully submits that each of the presently pending claims in this application are now believed to be in condition for allowance. Applicant has also drafted new claims 82-128 covering the disclosed invention. The Examiner indicated in his Office Action that claim 3-21 would be allowable if rewritten in independent form including all of the limitations of the base claims, which Applicant has provided as new independent claim 108-126. In addition, the Examiner objected to claims 74 and 81 but indicated that such claims would be allowable if rewritten in independent form including all of the limitations of the base and intervening claims, which Applicant has now designated as new claims 127 and 128, respectively.

It is believed all of such claims are also now in condition for immediate allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection to the claims and pass the application to issue.

Also enclosed is a Patent Application Fee Determination Record form. Applicant hereby requests a three-month extension of time in which to reply to the Office Action mailed December 21, 2006, hereby extending the period for reply from March 21, 2007 to June 21, 2007. A check in the amount of $2,185.00 to cover the required fee pursuant to 37 C.F.R. § 1.17(a) and the new claim fees is enclosed herewith. The

Commissioner is authorized to charge any additional fees due or credit an overpayment to Deposit Account No. 15-0385.

Respectfully submitted,



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